

REMARKS/ARGUMENTS

Claims 1-8 remain in this application with Claim 1 being in independent form. Claims 9-14 have been withdrawn as the result of an earlier restriction requirement.

35 U.S.C. § 112, Second Paragraph, Rejection of Claims 4 and 5

The Examiner has rejected Claims 4 and 5 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter, which the Applicants regard as the invention. More specifically, it is the Examiner's position that it is not clear how one would choose a binder based on climate or what factors would be important. In response, the Applicants have amended Claim 4 to clarify that the temperature of the geographic region is the determining factor in choosing an appropriate binder based on climate. A common definition for climate is the average weather conditions of a specified region. *Webster's II Dictionary* 137 (3d ed. 2005). As disclosed in the specification [0017], climate is classified into three categories: Northern (Type I), Central (Type II), and Southern (Type III). The particular weather condition that is most relevant in choosing a binder based on climate is the temperature corresponding to Type I, Type II, and Type III climates. For example, the specification [0019] [0020] discloses using the climate to determine the minimum high temperature and the minimum low temperature when grading the binder using the PG method.

Additionally, Claim 5 has been amended to clarify that the Type I, Type II and Type III binders are compositions that have certain characteristics, as disclosed in Tables 1 and 6. Each binder type is appropriate for use in its respective Northern (Type I), Central (Type II), or Southern (Type III) climate.

Claims 4 and 5 are now definite. Claim 4 distinctly claims choosing a binder based on the temperature component of the regional climate and Claim 5 claims Type I, II, and III binders

as compositions that are appropriate for use in the corresponding climates. Applicants respectfully submit that the Examiner's rejection has been traversed.

35 U.S.C. § 102 Rejection of Claims 1-2 and 6

It is the Examiner's position that Claims 1-2 and 6 are anticipated by Great Britain Patent No. 1,448,158 to Maier et al. (Maier) because Maier teaches a paved surface having 12% natural sand and a bitumen binder. (page 3, line 65 – page 4, line 13). Claim 1 is directed to an interlayer for placement on a paved surface. The interlayer is a mixture of aggregate, comprised of no more than about 15% by weight natural sand, and an asphalt binder. The physical properties of the interlayer are required to meet specific criteria including an Hveem Stability at 60° C. and 50 gyrations of at least about 22, and a Flexural Beam Fatigue of at least about 50,000 cycles at 2000 microstrains, 10 Hz, $3.0 \pm 2.0\%$ air voids, and 0-30° C. The Examiner argues that although Maier is silent as to the stability and fatigue levels, "the paved surface disclosed by the reference should have substantially similar results when subjected to stability and fatigue tests." (Office Action Paragraph 4). The Examiner, in relying on the theory of inherency, has failed to provide a basis in fact and/or technical reasoning to support the determination that the physical properties recited in Claim 1 necessarily result from the combination of 12% natural sand and bitumen binder taught in the prior art. Without factual basis for support, the Examiner's rejection is improper. *Ex Parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. Int. 1990). *See also* MPEP § 2112. Furthermore, the declaration of Phil Blankenship submitted with this response negates an inherency premise.

The physical properties recited in Claim 1 do not necessarily result from every 12% natural sand and bitumen binder mixture (Blankenship Dec. pars. 4 and 5). The specification [0036] specifically states, "If the interlayer mixture specimen does not pass minimum criteria for

the Hveem Stability test, then aggregate or binder must be re-selected." The claimed interlayer, having the recited physical properties, only results when materials meeting the criteria claimed are used. Whether the aggregate includes natural sand or some other material the resulting interlayer must meet the criteria specified in Claim 1 or the superior results which are attributable to the invention cannot be achieved.

The Examiner has failed to make a prima facie case for the 35 U.S.C. § 102 rejection because he has not advanced any basis for why the physical properties of the interlayer of Claim 1 are necessarily present in the paved surface taught in the prior art. Additionally, the multiple testing techniques disclosed in the specification and required in the claims are evidence that the physical properties of Claim 1 are *not* inherent in every 12% natural sand and bitumen binder combination. *In re Rijckaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art). *See also* MPEP § 2112. Based on the foregoing, the Applicants submit that Claims 1-2 and 6 are not anticipated by Maier and respectfully requests removal of the rejection of such claims under 35 U.S.C. § 102.

35 U.S.C. § 103 Rejection of Claims 1-2 and 6

Applicants submit that Claims 1-2 and 6 are nonobvious over Maier in view of U.S. Patent No. 3,822,556 to Cramwinckel et al. (Cramwinckel). As the standard for assessing obviousness, MPEP § 706.02 (j) lists three requirements for establishing a prima facie case of obviousness under 35 U.S.C. § 103:

- (1) First, there must be some suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings.

- (2) Second, there must be a reasonable expectation of success.
- (3) Finally, the prior art references must teach or suggest all of the claim limitations.

Applicants respectfully submit that a prima facie case of obviousness for rejecting the pending claims has not been established. The Examiner has failed to meet each of the three requirements for the following reasons.

(1) No Motivation to Modify or Combine the References

Recently, the Federal Circuit further articulated the motivation-suggestion-teaching requirement and held:

By requiring the Board to explain the motivation, suggestion, or teaching as part of its prima facie case, the law guards against hindsight in all cases—whether or not the applicant offers evidence on secondary considerations—which advances Congress's goal of creating a more practical, uniform, and definite test for patentability.

In re Kahn, 441 F.3d 977, 986 (Fed. Cir. 2006). When an Examiner does not explain the motivation, suggestion, or teaching to combine the references, there is an inference that improper hindsight was used to conclude that the invention was obvious. *Id.*

In the present case, the Examiner has failed to explain the motivation to combine Maier and Cramwinckel. The "intended application" that the Examiner believes would drive one of ordinary skill in the art to optimize stability and fatigue levels, is entirely distinct and unrelated in the two prior art references. The intended application in Maier relates to a paved surface having 12% natural sand and a bitumen binder. (page 3, line 65 – page 4, line 13). The intended application in Cramwinckel relates to a method of impermeabilizing a water-retaining surface by unwinding an asphalt mastic strip onto it. (col. 1, lines 47-52). The Examiner has not pointed out how the method taught in Cramwinckel would allow one of ordinary skill in the art to modify

the paved surface in Maier to obtain the present invention. Optimizing an asphalt mastic for purposes of impermeabilizing a surface, preformed and rolled on a reel, as taught in Cramwinckel, includes choosing a bitumen with a high enough softening point to withstand direct heat from the sun but not so high that the mastic is too rigid to unwind from a reel. (See col. 3, lines 4-12). This type of optimization, however, is not related to obtaining the desired stability and fatigue levels of a pavement interlayer in either Maier or the present invention. Applicants submit that the references are not properly combinable under factor (1) set forth above. Without any other explanation for a motivation to combine or modify the references, the inference is that the Examiner has used improper hindsight to make the rejection and has failed to make a prima facie case of obviousness.

(2) No Reasonable Expectation of Success

The Examiner argues that it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the composition of the aggregate in order to optimize the stability and fatigue levels of the pavement for the intended application. Applicants do not claim to have invented an interlayer comprising aggregate and binder. As previously explained, whether the composition of the aggregate is 12% natural sand or is adjusted to contain any percentage of natural sand between 0 and 15, there are other criteria specified in Claim 1 and not taught in Cramwinckel that must be considered in determining nonobviousness. Cramwinckel teaches optimizing flexibility for unrolling a mastic strip by adjusting the binder softening point. (col. 3, lines 4-12). One of ordinary skill in the asphalt art would have no reasonable expectation of success in obtaining an interlayer with the stability and fatigue levels recited in Claim 1 by modifying the paving material disclosed in Maier using the softening point information taught in Cramwinckel for a roll of mastic. Without a reasonable expectation of success in obtaining the

present invention from combining or modifying the references cited, the Examiner has failed to make a prima facie case of obviousness.

(3) The Prior Art References Do Not Teach or Suggest All the Claim Limitations

Maier and Cramwinckel, either alone or in combination, do not teach or suggest all the claim limitations. Claim 1 limits the interlayer by reciting physical properties relating to stability and fatigue levels. The Examiner admits that Maier is silent as to the stability and fatigue levels of the paved surface and fails to point out where the stability and fatigue levels of the asphalt mastic are taught in Cramwinckel. (Office Action Paragraph 9). The physical properties limitation of Claim 1 is not taught or suggested in either of the prior art references cited; therefore the Examiner has failed to make a prima facie case of obviousness.

The Examiner's reliance on *In re Best* is misplaced. That case stands for the proposition that where the claimed and prior art products are identical or substantially identical, the office can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of the claimed product. In other words, as stated by the Examiner in his rejection, a prima facie case of obviousness can be considered to have been established over *functional limitations* that stem from the claimed structure. In the present case, applicant's claims do not differ from the prior art by mere functional limitations. Rather, applicant's claims set forth specific qualitative limitations which differentiate the claims from the prior art. Furthermore, the Declaration of Phil Blankenship submitted at this time establishes unequivocally that all interlayers comprised of binder and no more than about 15% natural sand do not have the same Hveem Stability and Flexural Beam Fatigue and therefore the limitations recited in the claims are not inherent properties.

Based on the foregoing, Applicants submit that Claims 1-2 and 6 are nonobvious over Maier in view of Cramwinckel and respectfully requests removal of the rejection of such claims under 35 U.S.C. § 103.

35 U.S.C. § 103 Rejection of Claims 3-6

Claims 3-6 depend from Claim 1 and are novel and nonobvious over Maier in view of Cramwinckel for the same reasons that Claim 1 is novel and nonobvious. *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). *See also* MPEP § 2143.03 ("If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious."). It is the Examiner's position that "it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maier to any binder that would be appropriate for applications under particular climates." (Office Action Paragraph 16). Cramwinckel teaches preparing a roll of asphalt mastic from any suitable bitumen but only discloses optimizing the flow properties of the mastic for the appropriate climate conditions. (col. 2, line 63 – col. 3, line 3). As explained above, choosing a bitumen with a climate appropriate softening point for a rolled material is unrelated to optimizing the bitumen and aggregate mixture of the present invention to achieve the claimed physical properties related to stability and fatigue in different climates.

35 U.S.C. § 103 Rejection of Claims 7-8

For the reasons explained above, independent Claim 1 is novel and nonobvious and therefore dependant Claims 7-8 are also nonobvious, regardless of the U.S. Patent No. 6,669,773 to Malloy et al. (Malloy) reference. Malloy teaches a synthetic lightweight aggregate used as a substitute for sand in paving construction. (col. 1, lines 10-20; col. 10, lines 10-25) (Note: the Examiner cited col. 9 in the Office Action Paragraph 20, but it is clear from the subject matter disclosed in the specification and the proposition for which the citation was intended that the

reference should have been to col. 10). It is the Examiner's position that "since it was known at the time of the invention to use a lightweight aggregate as a replacement for all or some of the sand in an asphalt pavement application, it would have been obvious to one of ordinary skill in the art to replace al [sic] or some of the sand for cheaper and lower density material such as lightweight aggregate." (Office Action Paragraph 21). Applicants' specification [0027] discloses using an aggregate made primarily of manufactured sand (greater than 85%). The mere substitution of manufactured sand for natural sand, however, does not ensure that the physical properties recited in Claim 1 will result. As explained above, there are other criteria that the resulting interlayer must meet in order to achieve the desired results. Malloy teaches utilizing manufactured sand to optimize cost and weight, not to optimize stability and fatigue levels. One of ordinary skill in the art could modify the paved surface taught in Maier by substituting more synthetic lightweight aggregate for natural sand. The result would be a cheaper, lighter, paved surface but not the interlayer of the present invention having the requisite physical properties. The absence of any reference to fatigue or stability in Malloy is further evidence of the nonobviousness of the present Applicants' invention.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the claims are now in condition for allowance. Such action is respectfully requested. Should the Examiner have any further questions or comments which need be addressed in order to obtain allowance, please contact the undersigned attorney at the number listed below.

Acknowledgement of receipt is respectfully requested.

Respectfully submitted.

By: 

J. David Wharton, Reg. No. 25,717

Susan Wharton Bell, Reg. No. 41,524

STINSON MORRISON HECKER LLP

1201 Walnut, Suite 2900

Kansas City, MO 64106-2150

Telephone: (816) 842-8600

Facsimile: (816) 691-3495